

Mineral Industry Surveys

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ZINC IN MARCH 2000

Domestic mine production in March, expressed in zinc content of ore, was nearly 20% higher than in February and was more than 8% higher than in March 1999. Smelter production increased slightly over the previous month's production, but it was more than 2% below the production in March 1999. Apparent consumption in March was the same as in February, but it was nearly 13% lower than consumption in March of last year.

The *Platt's Metals Week* composite price for North American Special High Grade (SHG) zinc increased by nearly 2%, to 54.89 cents per pound of zinc metal; compared to March 1999, the price was about 7% higher.

In its Quarterly Report, Cominco Ltd. announced higher operating profits at its Red Dog Mine, Alaska, due to the combined impact of higher sales volumes, higher zinc prices, and lower unit cost resulting from the Production Rate Increase project. Sale of zinc concentrate in the first quarter of 2000 was 70,000 tons higher than in the first quarter of 1999. Work on the recently announced mill optimization at Red Dog has begun, and when completed, it is expected to increase zinc concentrate production to 1.1 million tons per year and improve quality of the concentrate. The major components of this 18-month project include an upgrade of the existing water treatment capacity, a new large-capacity zinc thickener, a major addition to flotation capacity, and additional power generation and fuel storage capacity. The cost of the mill optimization project is estimated at \$90 million (Cominco News, 2000).

Cominco and Japanese zinc smelter operators ended their latest round of talks on treatment charges in Tokyo, without any agreement. The next round of talks will be held during May. The Japanese smelters' first agreement on treatment charges for 2000 was negotiated with Australia's Pasminco Ltd., setting a charge of \$189 per ton based on a London Metal Exchange price of \$1,000 a ton, or about \$20 above last year's terms. Additional companies with whom Japanese smelters agreed include Normandy Mining Ltd, MIM Holdings Ltd., and Boliden Ltd. The smelters have not been eager to settle with Cominco because zinc concentrate shipments from its Red Dog Mine usually start in July, when

shipping lanes become navigable. Japanese smelters also hope for higher treatment charges after Cominco settles with European smelters, who have resolved not to settle for less than \$200 per ton (American Metal Market, 2000b).

Noranda Inc. of Canada uncovered a zinc-rich massive sulfide zone during initial exploration in Perseverance, near its Matagami mining camp in Quebec, Canada. Samples from the site's 10 drill holes contained between 13.5% and 25.5% zinc, in addition to 11.8-47.1 grams per ton silver and traces of copper. Gold assays are pending. The Perseverance project is a joint venture between Toronto-based Noranda, which holds a 90% interest, and Societe de Development de la Baie James (SDBJ), which has an option to acquire 10% interest after completing a positive feasibility study. SDBJ has the option of converting its interest to a 2% net smelter royalty, giving Noranda 100% interest with the option to reduce the smelter royalty to 1% by paying SDBJ \$1 million (American Metal Market, 2000c).

Noranda's Brunswick zinc-lead-silver mine near Bathurst, New Brunswick, Canada, was closed on March 31 and was expected to be out of operation for a month after a section of the main conveyor collapsed. In the interim, a temporary system has been put in place to supply feed to the concentrator. Although only the last section of the conveyor had collapsed, it halted the entire belt, which runs from about 35 meters underground directly to the mill. All operations at the mine and mill were shut down and workers had been temporarily laid off. The mine feeds Noranda's CEZinc refinery in Valleyfield, Quebec. Refinery operations are not expected to be affected, however. The impact on other customers of concentrate is being determined, but the company said it has no plans to declare force majeure. The Brunswick Mine last year produced 251,000 tons of zinc and 69,000 tons of lead in concentrate, in addition to about 170 tons of silver. The zinc production represented more than one-half of Noranda's total 455,000 tons of zinc production for 1999 (Metal Bulletin, 2000e).

Mechanical problems have forced Montreal-based Cambior Inc. to close the mill at its Bouchard-Hébert zinc-copper mine in Quebec for repairs, which are expected to take about 2 weeks. The

problem comes at an inopportune time, with the company in the process of selling the mine, together with the Langlois Mine, to Toronto-based Breakwater Resources Ltd. The transaction, which is not expected to be affected by the mill closure, is to be completed no later than April 17 (Metal Bulletin, 2000a).

Breakwater Resources Ltd. of Toronto, Canada, has signed a letter of intent with an Algerian national resource agency entitling it to earn up to a 90% stake in the Oued Amizour zinc project. In order to earn its share, Breakwater must complete a feasibility study, raise financing, and bring the mine into production. The Office de la Recherche Géologique et Minière (ORGM) of Algeria has estimated the total resources at Oued Amizour to be about 30.2 million tons grading 5.5% zinc and 1.4% lead. ORGM will retain 10% of the net profit, in addition to millions it will receive from Breakwater for the property from the net profits over a 5-year period. Last year, Breakwater produced 174,000 tons of zinc, plus lead, silver, and gold from its four mines. It is also in the process of buying two additional mines (Bouchard-Hébert and Langlois Mines, both in Canada) and already owns the Caribou Mine in Canada, which is currently on care and maintenance, pending higher zinc prices (Platt's Metals Week, 2000a).

Ireland's Ivernia West plc has completed a lease agreement on about 4,000 hectares in the Paducah area of western Kentucky and will begin exploration during May in what is believed to be a massive zinc sulfide area. After completing development of the Lisheen zinc mine in Ireland's County Tipperary last year, Ivernia is aiming to become a world-class base metal producer. Full production at Lisheen is expected to be reached in October, when output will total 5,000 tons of ore per day. Thus far, the mine has shipped more than 25 loads of concentrate from Cork to various smelters in Europe (American Metal Market, 2000a).

By the end of March, Europe's largest zinc mine, Tara in County Meath, Ireland, was producing at full capacity after the 7-month-long labor dispute that ended in February. Full production was achieved more quickly than anticipated primarily due to the temporary employment of contract workers, one of the reasons for the strike. The contract workers will be employed at least until the summer and possibly for an anticipated extension project. Switching from three 8-hour shifts to two 10½-hour shifts also helped to speed up the restart of the mine. Because of the unexpectedly favorable results, the mine's Finnish holding company Outokumpu Oy may give permission for the \$43 million project that would extend the life of the mine by 8 years. Outokumpu will determine if full production can be maintained with the permanent mining force alone after contract workers depart in the summer as required by the agreement that ended the strike (Metal Bulletin, 2000f).

The Turkish Cinkur smelter in Kayseri closed in November 1999 because an earthquake interrupted power supplies to the smelter. However, the smelter remained closed due to protracted negotiations with Turkish and Iranian companies that are planning a takeover bid for the plant. Before the takeover can be finalized, problems of raw material supply must be solved. The Iranians stopped providing Cinkur with zinc concentrates because they opened up new plants in Iran and therefore need the supplies for domestic use. Because of additional problems caused by a \$60 million debt, the future of the smelter in Kayseri is in doubt. When operating at full capacity, Cinkur is capable of producing about

35,000 tons of refined zinc per year (Metal Bulletin, 2000b).

Update

On April 15, a serious fire broke out at the baghouse at Cominco Ltd.'s Trail operations. Although the fire was confined to the baghouse, damage was extensive, necessitating closure of the smelter and slag fuming operations. It will take approximately 6 weeks to repair the damage. The company does not expect to make up for lost zinc production totaling about 7,000 tons. In order not to declare force majeure, Cominco will be compelled to buy zinc on the open market in order to supply its customers. However, as the zinc market moves closer to balance, there is less surplus zinc available, and small market interruptions like this have greater impact than in previous years when overall stock levels were much higher (Metal Bulletin, 2000c).

Noranda Inc. announced that operations had resumed at its Bell-Allard underground mine near Matagami, Quebec. Bell-Allard was forced to close on February 25 when the underground shaft compartment sustained damages after the hoisting skip malfunctioned. The cost to repair the damage was just under \$1 million (Metal Bulletin, 2000d).

The Premier of Queensland officially opened Pasmafinco Ltd.'s Century zinc mine on April 4, 10 years after the first exploration drill-holes intersected significant mineralization. The Century deposit, which is 250 kilometers from Mount Isa in the most northern part of Queensland, now supports the world's largest zinc mine. By mid-April, 100,000 tons of high grade concentrate will be shipped to Pasmafinco's Budel zinc smelter in the Netherlands. Shipments to other customers will begin in May. At full output, Century will produce 500,000 tons of zinc in concentrate per year (Platt's Metals Week, 2000b). The concentrate will be pumped through the 304-kilometer-long pipeline to the Gulf of Carpentaria. From there, about one-half of the concentrate will be shipped to the Budel smelter and the rest to various smelters, mostly in Asia.

References Cited

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- Cominco News, 2000, Cominco announces first quarter results: Cominco News, press release, April 25.
- Metal Bulletin, 2000a, Cambior shuts Bouchard-Hebert mill for repairs: Metal Bulletin, no. 8465, April 6, p. 5.
- 2000b, Cinkur smelter fails to delight Turkish zinc industry: Metal Bulletin, no. 8468, April 17, p. 11.
- 2000c, Cominco unable to make up lost Zn production after fire: Metal Bulletin, no. 8469, April 20, p. 8.
- 2000d, Conveyor collapse shuts Brunswick mine: Metal Bulletin, no. 8465, April 6, p. 5.
- 2000e, Noranda gets mines back in operation: Metal Bulletin, no. 8466, April 10, p. 3.
- 2000f, Tara gets production back up to speed: Metal Bulletin, no. 8465, April 6, p. 5.
- Platt's Metals Week, 2000a, Breakwater to buy into Algerian zinc: Platt's Metals Week, v. 71, no. 17, April 24, p. 14.
- 2000b, Pasmafinco formally opens Century zinc: Platt's Metals Week, v. 71, no. 15, April 10, p. 13.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons; unless otherwise specified)

	1999	2000			
	January- December p/	January	February	March	January- March
Production:					
Mine, zinc content of concentrate	813,000	68,000	59,300 r/	70,900	198,000
Mine, recoverable zinc	771,000	64,400	56,100 r/	67,200	188,000
Smelter, refined zinc	355,000	28,300	31,100	31,200	90,600
Oxide (gross weight)	123,000	8,470	9,850	9,870	28,200
Consumption:					
Refined zinc, reported	504,000	41,800 r/	44,600 r/	47,700	134,000
Ores e/ (zinc content)	1,020	85	85	85	255
Zinc-base scrap e/ (zinc content)	225,000	18,800	18,800	18,800	56,300
Copper-base scrap e/ (zinc content)	200,000	16,700	16,700	16,700	50,000
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240	103	103	103	309
Total e/	932,000	77,400 r/	80,200 r/	83,300	241,000
Apparent consumption, metal 2/	1,430,000	115,000 r/	104,000 r/	104,000 3/	322,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	XX	8,730	8,730	8,730	XX
Consumer 5/	XX	61,300 r/	60,300 r/	59,000	XX
Merchant	XX	9,360 r/	9,820 r/	9,820	XX
Total	XX	79,300 r/	78,900 r/	77,600	XX
Shipments of zinc metal from Government stockpile	22,100	3,970	2,710	2,330	9,020
Imports for consumption:					
Refined (slab) zinc	1,060,000	82,100	69,300	NA	151,000 6/
Oxide (gross weight)	65,200	6,200	4,990	NA	11,200 6/
Ore and concentrate (zinc content)	74,600	4,570	10,900	NA	15,500 6/
Exports:					
Refined (slab) zinc	1,880	39	122	NA	162 6/
Oxide (gross weight)	7,260	530	557	NA	1,090 6/
Ore and concentrate (zinc content)	531,000	8,520	8,700	NA	17,200 6/
Waste and scrap (gross weight)	28,200	1,770	2,360	NA	4,130 6/
Price:					
London Metal Exchange, average, dollars per metric ton	1,075.96	1,178.43	1,094.50	1,116.00	1,129.64
Platt's Metals Week North American Special High Grade, average, cents per pound	53.48	57.72	53.91	54.89	55.51

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through February only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1999:				
March	8,360	31,900	30,100	10,200
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	28,200	28,600	8,930
July	8,930	28,600	28,800	8,770
August	8,770	30,600	31,400	7,900
September	7,900	27,200	27,000	8,120
October	8,120	31,500	30,700	8,960
November	8,960	31,200	31,400	8,730
December	8,730	27,200	27,200	8,730
Year	XX	355,000	355,000	XX
2000:				
January	8,730	28,300	28,300	8,730
February	8,730	31,100	31,100	8,730
March	8,730	31,200	31,200	8,730
January - March	XX	90,600	90,600	XX

XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1999:				
March	4,270	11,800	11,800	4,270
April	4,270	11,800	12,400	3,680
May	3,680	11,900	11,900	3,640
June	3,640	8,680	9,010	3,310
July	3,310	8,720	8,740	3,290
August	3,290	9,150	9,020	3,420
September	3,420	9,230	9,070	3,570
October	3,570	9,320	9,160	3,730
November	3,730	9,880	9,650	3,960
December	3,960	7,910	8,620	3,250
Year	XX	123,000	125,000	XX
2000:				
January	3,250	8,470	8,260	3,460
February	3,460	9,850	9,340	3,960
March	3,960	9,870	9,870	3,960
January - March	XX	28,200	27,500	XX

XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE
SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1999	2000			January- March
	January- December p/	January	February	March	
Agriculture	1,660	132	125	131	387
Ceramics	6,380	430	463	478	1,370
Chemicals	27,200	1,760	2,060	2,200	6,020
Paints	5,060	302	324	335	961
Photocopying	3,080	217	261	281	759
Rubber	80,200	5,310	5,980	6,310	17,600
Other	1,530	107	131	141	379
Total	125,000	8,260	9,340	9,870	27,500

p/ Preliminary.

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1999	2000			January- March
	January- December p/	January r/	February r/	March 2/	
Galvanizing:					
Sheet and strip	575,000	46,100	40,600	40,200	127,000
Other	221,000	17,400	14,400	14,100	46,000
Total	796,000	63,600	55,000	54,300	173,000
Brass and bronze	206,000	16,900	14,600	14,800	46,300
Zinc-base alloy	263,000	21,300	18,600	19,700	59,500
Other uses 3/	166,000	13,200	15,300	15,200	43,800
Grand total	1,430,000	115,000	104,000	104,000	322,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American	LME cash	
	¢/lb.	¢/lb.	\$/t
1999:			
March	51.27	46.70	1,029.61
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
July	53.72	48.61	1,071.69
August	56.26	51.26	1,130.16
September	58.65	54.13	1,193.34
October	56.61	52.09	1,148.36
November	56.53	52.02	1,146.77
December	57.94	53.68	1,183.34
Year	53.48	48.80	1,075.96
2000:			
January	57.72	53.45	1,178.43
February	53.91	49.65	1,094.50
March	54.89	50.62	1,116.00
January - March	55.51	51.24	1,129.64

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	2000 2/					
	1999		February		Year to date	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,880	\$2,220	122	\$157	162	\$204
Ore and concentrate (zinc content)	531,000	317,000	8,700	8,430	17,200	13,600
Waste and scrap (gross weight)	28,200	24,400	2,360	1,670	4,130	2,820
Powders, flakes, and dust (zinc content)	5,050	9,500	537	819	946	1,470
Oxide (gross weight)	7,260	11,700	557	769	1,090	1,610
Chloride (gross weight)	3,200	2,140	137	138	214	233
Sulfate (gross weight)	4,750	2,940	751	470	1,180	751
Compounds, other (gross weight)	864	3,280	58	162	89	259

1/ Data are rounded to no more than three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	2000 2/					
	1999		February		Year to date	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,060,000	\$1,050,000	69,300	\$82,900	151,000	\$183,000
Ore and concentrate (zinc content)	74,600	40,500	10,900	4,260	15,500	5,170
Waste and scrap (gross weight)	26,600	13,100	2,820	1,320	4,100	2,020
Powders, flakes, and dust (zinc content)	21,300	38,400	2,170	4,440	3,730	7,430
Oxide (gross weight)	65,200	66,600	4,990	5,560	11,200	12,300
Chloride (gross weight)	1,650	1,520	120	126	242	240
Sulfate (gross weight)	10,500	6,350	1,070	593	1,940	1,040
Compounds, other (gross weight)	1,340	1,420	128	137	207	232

1/ Data are rounded to no more than three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1999:			
March	194,000	2,800	191,000
April	191,000	1,640	190,000
May	190,000	736	189,000
June	189,000	800	188,000
July	188,000	1,450	187,000
August	187,000	2,830	184,000
September	184,000	2,310	181,000
October	181,000	--	181,000
November	181,000	2,320	179,000
December	179,000	2,290	177,000
Year	XX	22,100	XX
2000:			
January	177,000	3,970	173,000
February	173,000	2,710	170,000
March	170,000	2,330	168,000
January - March	XX	9,020	XX

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	1999	2000 2/		1999	2000 2/	
		February	Year to date		February	Year to date
Ore and concentrate (zinc content):						
Australia	7,540	5,290	5,290	7,540	5,290	5,290
Mexico	14,000	462	5,030	13,700	462	5,030
Netherlands	--	5,150	5,150	--	5,150	5,150
Peru	43,700	328	1,210	40,600	--	--
South Africa	12,800	--	--	12,800	--	--
Other	102	44	44	--	--	--
Total	78,100	11,300	16,700	74,600	10,900	15,500
Blocks, pigs, or slab:						
Brazil	19,700	1,250	2,520	19,700	1,250	2,520
Canada	535,000	42,900	90,400	535,000	42,900	90,400
China	62,500	1,620	2,610	55,800	1,620	2,610
Finland	13,300	--	--	13,300	--	--
Kazakhstan	135,000	7,060	7,060	135,000	7,060	7,060
Korea, Republic of	51,700	1,750	9,000	51,700	1,750	9,000
Mexico	95,100	6,250	14,600	95,100	6,250	14,600
Peru	68,500	6,960	10,200	68,500	6,960	10,200
Poland	13,300	--	2,000	13,300	--	2,000
Russia	16,100	1,250	7,360	16,100	1,250	7,360
Spain	11,700	--	2,800	11,700	--	2,800
Other	34,200 r/	220	2,790	41,800 r/	220	2,790
Total	1,060,000	69,300	151,000	1,060,000	69,300	151,000
Dross, ashes, & fume (content)	20,000	1,680	2,480	20,000	1,680	2,480
Grand total	1,150,000	82,200	171,000	1,150,000	81,800	169,000
Oxide (gross weight):						
Canada	35,800	2,980	6,710	35,800	2,980	6,710
China	1,790	206	246	1,790	206	246
Germany	1,270	97	147	1,270	97	147
Japan	1,150	124	213	1,150	124	213
Mexico	20,700	1,220	3,230	20,700	1,220	3,230
Netherlands	2,660	145	254	2,660	145	254
Other	1,790	216	381	1,790	216	381
Total	65,200	4,990	11,200	65,200	4,990	11,200
Other (gross weight):						
Waste and scrap	26,600	2,820	4,100	26,600	2,820	4,100
Sheets	22,600	661	2,400	22,600	661	2,400
Powders, flakes, and dust (zinc content)	21,300	2,170	3,730	21,300	2,170	3,730

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.